Remarks

Reconsideration of the application is respectfully requested in view of the foregoing amendments and following remarks. Claims 116-121, 123-127, 129-134, 136-141, 143-148, 150-154 and 168-183 are pending in the application. No claims have been allowed. Claims 116, 123, 129, 136, 143, 150 and 168-179 are independent. Claims 116, 123, 129, 136, 143, 146, 150 and 168-179 have been amended.

Cited Art

The Office action ("Action") applies the following cited art: U.S. Patent No. 6,353,807 to Tsutsui et al. ("Tsutsui"); U.S. Patent No. 5,822,370 to Graupe ("Graupe"); Geiger et al., "Audio Coding Based on Integer Transforms," *AES Convention Paper 5471*, 111th AES Convention, New York, NY, September 21-24, 2001 ("Geiger"); and Lopez et al., "Software Toolbox for Multichannel Sound Reproduction," Proceedings of Digital Audio Effects Conference (DAFX), Barcelona, Spain, December 1998 ("Lopez").

Claim Rejection under 35 USC § 112

Claim 146 is rejected under the second paragraph of 35 U.S.C. § 112, as being indefinite. Applicants respectfully disagree that the "identity transform" language is indefinite. However, to expedite prosecution, applicants have amended claim 146 to remove the "identity transform" language. Applicants request that the § 112 rejection be withdrawn.

Claim Rejections under 35 USC § 103

I. Claims 129-131, 133-134, 143-145, 147-148, 150-154, 170, 172-173, 176 and 178-179 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,353,807 to Tsutsui.

Response of Examiner's Arguments

In the Action, the Examiner argues that Tsutsui teaches "selecting a multi-channel transform from among plural available types of multi-channel transforms" as recited by claims

129, 170, and 176, respectively. Specifically, the Examiner points to Tsutsui "Fig. 3, modules 1203, 1204, and 1205 that shows the use of three transforms for an input multi-channel signal. Action, page 2. Applicants respectfully disagree with the Examiner's conclusions.

Tsutsui does not teach or suggest "selecting a multi-channel transform from among plural available types of multi-channel transforms" as recited by claims 129, 170, and 176, respectively. In the first section of Tsutsui, from the beginning to col. 31, Tsutsui only describes transform processing for mono signals and individual channels. As Tsutsui explicitly states at col. 31, lines 27-33:

> Although the transform processing described above is for monoaural spectral signals, it may be performed on the individual channels to be used for multi-channel signals, such as stereo signals. In this case, faster transform can be achieved by further simplifying the processing while maintaining good sound quality by utilizing the auditory characteristics.

Therefore, up to col. 31, Tsutsui is only describing single channel transform processing. This section includes the material cited by the Examiner (Fig. 3). In Fig. 3, Tsutsui is describing transform processing on a single channel, and not on a multi-channel signal as argued by the Examiner, "The band division filter 1201 divides a signal 201 between two bands." Tsutsui, col. 17, lines 19-20. As a result, the modules 1203, 1204, and 1205 of Fig. 3 are performing transform processing for a single channel. Performing transform processing on a single channel, as described by Tsutsui, does not teach or suggest a multi-channel transform.

In the second section of Tsutsui, after col. 31, line 33, Tsutsui describes a single multi-channel transform, which is a sum-difference L/R transform: (L+R)/2 and (L-R)/2. Tsutsui, beginning at col. 31, line 34; see, for example, col. 32, lines 45-67 and col. 40, lines 22-27.

Because Tsutsui only describes one type of multi-channel transform, Tsutsui does not teach or suggest "selecting a multi-channel transform from among plural available types of multi-channel transforms" as recited by claims 129, 170, and 176, respectively. Tsutsui is even further from teaching or suggesting "the plural available types include three or more pre-defined transforms."

The Examiner next argues that Tsutsui's description of individually processing single channels of a multi-channel signal teaches a multi-channel transform. Action, page 2. Applicants respectfully disagree.

Separately applying a transform within individual channels of a multi-channel signal, as described by Tsutsui, is not a multi-channel transform. Instead, a multi-channel transform is a transformation across multiple channels for values at an index (e.g., frequency coefficient values at a frequency index) in the multiple channels. The Application describes various ways of grouping channels together for a multi-channel transform. For example, in section V(B) "Channel Groups," beginning on page 39, the Application describes transforming channels together based on tile configuration, or based upon bands. *See also* Application, pages 10-12, 24-26, 38-43 and 61. In order to clarify the claim language, claim 129 has been amended to recite, "selecting a multi-channel transform from among plural available types of multi-channel transforms, wherein the plural available types include three or more pre-defined transforms, *and wherein each of the plural available types of multi-channel transforms specifies a different transformation across plural channels for values at a given index in the plural channels*." The amendment to claim 129 does not alter the scope of the claim. The remaining independent claims have been amended similarly.

Claims 129, 170, and 176

Tsutsui does not teach or suggest "selecting a multi-channel transform from among plural available types of multi-channel transforms, wherein the plural available types include three or more pre-defined transforms, and wherein each of the plural available types of multi-channel transforms specifies a different transformation across plural channels for values at a given index in the plural channels" as recited by claims 129, 170, and 176, respectively. As discussed above, Tsutsui first describes transform processing performed on monoaural signals and on individual channels of a multi-channel signal. Tsutsui, col. 31, lines 27-33. Next, Tsutsui describes a single multi-channel transform, which is a sum-difference L/R transform: (L+R)/2 and (L-R)/2. Tsutsui, beginning at col. 31, line 34; see, for example, col. 32, lines 45-67 and col. 40, lines 22-27.

Because Tsutsui only describes one type of multi-channel transform, Tsutsui does not teach or suggest "selecting a multi-channel transform from among plural available types of multi-channel transforms, wherein the plural available types include three or more pre-defined transforms, and wherein each of the plural available types of multi-channel transforms specifies a different transformation across plural channels for values at a given index in the plural channels"

as recited by claims 129, 170, and 176, respectively. Therefore, claims 129, 170, and 176 should be in condition for allowance.

Claims 143, 150, 172, 173, 178, and 179

Each of amended claims 143, 172 and 178 recites, "selecting an inverse multi-channel transform from among plural available types of inverse multi-channel transforms, wherein the plural available types include three or more pre-defined transforms, and wherein each of the plural available types of inverse multi-channel transforms specifies a different transformation across plural channels for values at a given index in the plural channels." Each of amended claims 150, 173 and 179 recites, "selecting an inverse multi-channel transform from among plural available types of inverse multi-channel transforms, wherein the plural available types include plural pre-defined transforms and at least one custom transform, and wherein each of the plural available types of inverse multi-channel transforms specifies a different transformation across plural channels for values at a given index in the plural channels." For at least the reasons discussed above with regard to claims 129, 170, and 176, Tsutsui does not teach or suggest this language of claims 143, 150, 172, 173, 178, and 179, respectively. Therefore, claims 143, 150, 172, 173, 178, and 179 should be in condition for allowance.

Claims 130, 131, 133, 134, 144, 145, 147, 148, and 151-154

Each of claims 130, 131, 133, and 134 depends on claim 129. Thus, for at least the reasons set forth above with regard to claim 129, claims 130, 131, 133, and 134 should be in condition for allowance.

Each of claims 144, 145, 147, and 148 ultimately depends on claim 143. Thus, for at least the reasons set forth above with regard to claim 143, claims 144, 145, 147, and 148 should be in condition for allowance.

Each of claims 151-154 ultimately depends on claim 150. Thus, for at least the reasons set forth above with regard to claim 150, claims 151-154 should be in condition for allowance.

II. Claims 116-121, 123-127, 168-169 and 174-175 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsutsui in view of Graupe.

Graupe

As understood by Applicants, Graupe describes compression and decompression to "provide an economical way to transmit a signal, having a spectrum greater than 3.5 kHz bandwidth, over a telephone line." Graupe, col. 2, lines 52-58. Specifically, Graupe describes using a bandpass filter to determine the power present in each band, and to transform, using a discrete wavelet transform, information present in the upper bands and shift it to the lower bands. Graupe, Abstract.

Claims 116, 123, 168, 169, 174, and 175

Each of claims 116, 168, and 174 recites "selecting a multi-channel transform from among plural available types of multi-channel transforms, wherein each of the plural available types of multi-channel transforms specifies a different transformation across plural channels for values at a given index in the plural channels." Each of claims 123, 169, and 175 recites "selecting an inverse multi-channel transform from among plural available types of inverse multi-channel transforms, wherein each of the plural available types of inverse multi-channel transforms specifies a different transformation across plural channels for values at a given index in the plural channels." For at least the reasons discussed above with regard to claims 129, 170, and 176, Tsutsui does not teach or suggest this language of claims 116, 123, 168, 169, 174, and 175, respectively. Furthermore, as understood by Applicants, Graupe does not add sufficient disclosure to overcome this deficiency. Taken separately or in combination, Tsutsui and Graupe fail to teach or suggest this language of claims 116, 123, 168, 169, 174, and 175, respectively. Therefore, claims 116, 123, 168, 169, 174, and 175 should be in condition for allowance.

Claims 117-121, 124-127

Each of claims 117-121 depends on claim 116. Thus, for at least the reasons set forth above with regard to claim 116, claims 117-121 should be in condition for allowance.

Each of claims 124-127 depends on claim 123. Thus, for at least the reasons set forth above with regard to claim 123, claims 124-127 should be in condition for allowance.

III. Claims 132 and 146 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsutsui in view of Lopez.

Claims 132 and 146

Dependent claim 132 depends on claim 129 and dependent claim 146 depends on claim 143. For at least the reasons discussed above with regard to the cited language of claims 129 and 143, Tsutsui does not teach or suggest each and every limitation in claim 132 or 146. Furthermore, as understood by Applicants, Lopez does not add sufficient disclosure to overcome this deficiency. Tsutsui and Lopez, taken separately or in combination, fail to teach or suggest the cited language of claims 129 and 146. Therefore, claims 132 and 146 should be allowable.

IV. Claims 136-141, 171 and 177 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsutsui in view of Geiger.

Claims 136, 171, and 177

Each of claims 136, 171, and 177 recites "selecting a multi-channel transform from among plural available types of multi-channel transforms, wherein the plural available types include plural pre-defined transforms and at least one custom transform, and wherein each of the plural available types of multi-channel transforms specifies a different transformation across plural channels for values at a given index in the plural channels." For at least the reasons discussed above with regard to claims 129, 170, and 176, Tsutsui does not teach or suggest this language of claim 136. Furthermore, as understood by Applicants, Geiger does not add sufficient disclosure to overcome this deficiency. Tsutsui and Geiger, taken separately or in combination, fail to teach or suggest this language of claim 136. Therefore, claims 136, 171, and 177 should be in condition for allowance.

Claims 137-141

Each of claims 137-141 depends on claim 136. Thus, for at least the reasons set forth above with regard to claim 136, claims 137-141 should be in condition for allowance.

New Claims

Dependent claims 180-183 have been added. For example, see the Application at pages 38-43. For at least the reasons discussed above with regard to their respective independent claims, claims 180-183 should be in condition for allowance.

Request for Interview

If any issues remain, the Examiner is formally requested to contact the undersigned attorney prior to issuance of the next Office action in order to arrange a telephonic interview. It is believed that a brief discussion of the merits of the present application may expedite prosecution. Applicants submit the foregoing formal Amendment so that the Examiner may fully evaluate Applicants' position, thereby enabling the interview to be more focused.

This request is being submitted under MPEP § 713.01, which indicates that an interview may be arranged in advance by a written request.

Conclusion

The claims should be allowable. Such action is respectfully requested.

Respectfully submitted,

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